INTERNATIONAL SEARCH REPORT

PCT/JP2004/015179

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 H01L29/78 H01L H01L29/423 H01L21/336 H01L29/739 H01L29/06 H01L21/331 According to International Patent Classification (IPC) or to both national classification and IPC **B. FIELDS SEARCHED** Minimum documentation searched (classification system followed by classification symbols) IPC 7 H01L Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the International search (name of data base and, where practical, search terms used) EPO-Internal, INSPEC, PAJ C. DOCUMENTS CONSIDERED TO BE RELEVANT Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. Category ° 1,11 X US 6 194 741 B1 (KINZER D M ET AL) 27 February 2001 (2001-02-27) column 4, line 49 - line 60; figure 6 3-6, 8-10,13column 2, line 36 - column 3, line 50; A figures 1,2 3-6,8,9,WO 00/70654 A (INFINEON TECHNOLOGIES AG ET AL) 23 November 2000 (2000-11-23) 13 page 7, line 7 - line 18; figure 3 1,11 WO 99/52152 A (HITACHI LTD ET AL) 10 14 October 1999 (1999-10-14) figure 4 A US 2003/160281 A1 (CHEN X) A 28 August 2003 (2003-08-28) paragraph '0025! - paragraph '0036!; figures 2A-2C,3A-3C,5 Patent family members are listed in annex. Further documents are listed in the continuation of box C. Special categories of cited documents: "T" later document published after the international filing date or priority date and not in conflict with the application but "A" document defining the general state of the art which is not cited to understand the principle or theory underlying the considered to be of particular relevance invention earlier document but published on or after the international "X" document of particular relevance; the claimed invention filling date cannot be considered novel or cannot be considered to "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another involve an Inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention citation or other special reason (as specified) cannot be considered to involve an inventive step when the document is combined with one or more other such docu-"O" document referring to an oral disclosure, use, exhibition or ments, such combination being obvious to a person skilled other means In the art. document published prior to the International filing date but later than the priority date claimed "&" document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 17/06/2005 8 June 2005 Name and mailing address of the ISA **Authorized officer** European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Morvan, D Fax: (+31-70) 340-3016

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